

REMARKS

In paragraphs 1 and 2 of the office action, the Examiner rejected claims 1-4, 6, 7 and 9 under 35 U.S.C. 102(e) as being anticipated by Heitman *et al.* (U.S. Patent 5,449,112), and claims 5, 8 and 10-20 under 35 U.S.C. 103(a) as being unpatentable over Heitman *et al.* Applicant traverses the rejections of claims 1-9 and 12-20, and amends claim 10.

Heitman discloses a method and apparatus for controlling air handling systems using multiple flow control command devices 24, which communicate information ultrasonically to an ultrasonic transceiver 82 located in an HVAC system 12. *See*, Col. 4, line 58 through col. 5, line 54 and Figure 4. The transceiver 82 extracts control commands and transfers the control commands to a control processor 84. *Id.* The control processor 84 controls either the air conditioner condenser 70 or the furnace 74 and the blower 76 based on the commands. *Id.* The control processor 84 also controls the opening and closing of dampers 34 located in air ducts 14 based on the commands. *Id.* In the disclosed Heitman system, the registers 18 are merely passive structures "through which air may flow" into a room. Col. 2, lines 66-67. The registers 18 do not include any circuitry or communications devices for communicating with sensors or a base station. Nor is there any disclosure describing the automatic control of the registers 18 based on commands from a base station or any other device. In sum, the registers 18 are the conventional dumb, manually operated registers whose deficiencies were described in the background section of the present application.

From a commercial standpoint, the Heitman system is too complex and costly to implement in most residential properties or smaller structures. The system requires automated dampers in the air ducts, an ultrasonic transceiver in the HVAC system, and separate control processor for controlling the HVAC and dampers. Although such a complex system may be practical in a large factory or office building, its high cost and dependence on controlling air flow in a air duct system makes it impractical and cost prohibitive for residential use and smaller structures. Indeed, Heitman system is the type of expensive prior art system the present invention was developed to overcome and teaches away from Applicant's claimed invention for at least the reasons set forth below.

Independent Claim 1 recites:

1. (Original) An automated air flow system for controlling the flow of conditioned air into multiple zones of a structure, comprising:

an automated register configured to receive temperature data from at least one temperature sensor in at least one zone and to control the flow of conditioned air into the at least one zone in response to the temperature data; and

a base station in communication with the automated register and adapted to be coupled to an air flow source for providing the conditioned air, the base station configured to receive status data from the automated register and to control the air flow source based on the status data.

These claimed features provide a superior commercial advantage for at least the residential market in that one simply replaces the cheap standardized registers with automated registers and the existing thermostat with a base station. There is no need to modify the air duct system to include dampers or expensive ultrasonic sensors, as required by the Heitman system.

Heitman fails to disclose or suggest “an automated register configured to receive temperature data from at least one temperature sensor in at least one zone and to control the flow of conditioned air into the at least one zone in response to the temperature data,” as claimed. Rather, Heitman discloses the use of an automated damper 34 located in the air duct 14, which does not receive temperature data. Nor do the passive registers 18 “control the flow of conditioned air” into a room “in response to the temperature data,” as claimed

Heitman also fails to disclose or suggest “a base station in communication with the automated register and adapted to be coupled to an air flow source for providing the conditioned air, the base station configured to receive status data from the automated register and to control the air flow source based on the status data,” as claimed. Rather, Heitman discloses a register 18 that is neither automated nor communicates with a base station nor any other device. The control processor 84 does not “receive status data” from the register 18, and, therefore, the control processor 84 cannot “control the air flow source” (*i.e.*, blower 76 or furnace 74) “based on the status data,” as claimed.

The failure of Heitman to disclose each and every limitation of claim 1 vitiates any basis for rejection of claim 1 under 35 U.S.C. 102(e) and 35 U.S.C. 103(a). Therefore, Applicant respectfully requests that the Examiner withdrawal the rejection of claim 1 and allow claim 1, as originally filed.

Claims 2-9 depend on claim 1 and include all the limitations of claim 1. Therefore, claims 2-9 are allowable for at least the same reasons as claim 1 and for the independent subject matter recited therein.

Amended independent Claim 10 recites:

10. (Currently Amended) A method of automatically controlling the flow of conditioned air into multiple zones of a structure, comprising:

- specifying target temperatures for a plurality of zones, wherein at least two zones have a different target temperature;
- enabling an air flow source to provide conditioned air to each zone using an automated register until each zone reaches its respective target temperature;
- responsive to a zone reaching its target temperature, automatically redirecting the conditioned air from that zone to zones that have not reached their respective target temperatures by closing the automated register; and
- responsive to ~~all the zones reaching their respective target temperatures~~ the closure of the automated register,
- preventing the air source from providing conditioned air to the zones.

Heitman fails to disclose or suggest “enabling an air flow source to provide conditioned air to each zone using an automated register.” Nor does Heitman disclose responsive to a zone reaching its target temperature, automatically redirecting the conditioned air...by closing the automated register.” Heitman also fails to disclose “responsive to the closure of the automated register, preventing the air source from providing conditioned air to the zones.

The failure of Heitman to disclose each and every limitation of claim 10 vitiates any basis for rejection of claim 1 under 35 U.S.C. 102(e) and 35 U.S.C. 103(a). Therefore, Applicant respectfully requests that the Examiner withdrawal the rejection of claim 10 and allow claim 10, as originally filed.

Claims 11 depends on claim 10 and includes all the limitations of claim 10. Therefore, claim 11 is allowable for at least the same reasons as claim 10 and for the independent subject matter recited therein.

Independent claim 12 recites:

12. (Original) An automated air flow system for controlling the flow of conditioned air into multiple zones of a structure, comprising:

- a plurality of automated registers, wherein selected ones of the plurality of automated registers that are located in zones that have reached target temperatures are configured to

automatically redirect conditioned air to zones which have not reached target temperatures, wherein at least two zones have different target temperatures; and

a base station adapted to be coupled to an air source for providing conditioned air to the zones, the base station configured to turn-off the air source in response to status data from the automated registers indicating that all the zones have reached their respective target temperatures.

Heitman fails to disclose or suggest "automated registers...configured to automatically redirect conditioned air to zones." Nor does he suggest "a base station configured to turn-off the air source in response to status data from the automated registers." Rather, Heitman discloses passive registers 18 in the wall of a room as distinct from dampers 34 located in an air duct. This distinction is important in that the registers 18 are easily accessed, replaced and maintained by an average user (e.g., homeowner), whereas the dampers 34 are not easily accessible and would require a skilled technician to replace or maintain them. Moreover, the registers 18 do not communicate with an HVAC or central computer. Nor is the HVAC 12, furnace 74, blower 76 any other devices or systems controlled "in response to status data from the automated registers."

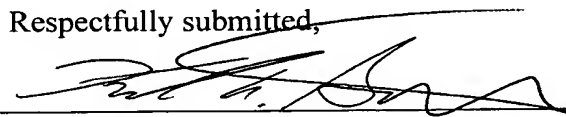
The failure of Heitman to disclose or suggest each and every limitation of claim 12 vitiates any basis for rejection of claim 1 under 35 U.S.C. 102(e) and 35 U.S.C. 103(a). Therefore, Applicant respectfully requests that the Examiner withdrawal the rejection of claim 12 and allow claim 12, as originally filed.

Claims 13-20 depend on claim 1 and include all the limitations of claim 12. Therefore, claims 13-20 are allowable for at least the same reasons as claim 12 and for the independent subject matter recited therein.

In light of the above remarks, Applicant respectfully requests that the Examiner reconsider this application with a view towards allowance. The Examiner is invited to call the undersigned attorney if a telephone call could help resolve any remaining items.

Respectfully submitted,

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